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U.S. EPA REGION V
WASTE MANAGEMENT DIVISION
HAZARDOUS WASTE ENFORCEMENT BRANCH

PUROLATOR

October 21, 1985

Director, Waste Management Division
USEPA, Region V
Attn: Neil Meldgin (5 HE-12)
230 S. Dearborn Street
Chicago, Illinois 60604

Director
Illinois Environmental Protection Agency
Attn: Jim Frank/J. G. Hooker
2200 Churchill Road
Springfield, Illinois 62706

Deputy Chief, Environmental Control Division
Illinois Attorney General's Office
500 South Second Street
Springfield, Illinois 62706

Subject: Agreement and Administrative Order by Consent
Granite City Site
RI/FS Work, Safety and QA/QC Plans

Gentlemen:

Pursuant to Paragraph 16 of the Order, Attachments 1 through 4 to this letter respectively respond to the following communications, which concern the subject plans prepared by our consultant, O'Brien & Gere ("OB&G"):

<u>Author</u>	<u>Affiliation</u>	<u>Date of Letter</u>	<u>Subject</u>
John G. Hooker	Illinois EPA	July 15, 1985	Work Plan Safety Plan
John G. Hooker	Illinois EPA	July 24, 1985	QA/QC Plan
Neil Meldgin	USEPA	July 30, 1985	Work Plan Safety Plan QA/QC Plan
J.H. Adams, Jr.	USEPA	August 19, 1985	QA/QC Plan

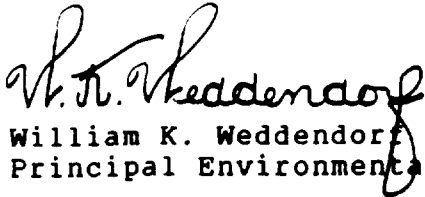
NL Industries, Inc.
Environmental Control Department
P.O. Box 1090, Hightstown, N.J. 08520 Tel. (609) 443-

USEPA, Region V
Illinois Environmental Protection Agency
Illinois Attorney General's Office
October 21, 1985
Page -2-

For ease of reference, I have incorporated copies of the above-noted letters at the end of each attachment. OB&G's revised plans will be submitted to you under separate cover.

If you have any questions regarding this matter, please telephone me at 609-443-2499.

Very truly yours,

A handwritten signature in dark ink, appearing to read "W.K. Weddendorf", is written over the typed name and title.

William K. Weddendorf
Principal Environmental Engineer

WKW/dcb

enclosures

cc: F. D. Hale - OB&G

ATTACHMENT 1

Response to July 15, 1985
Comments by J. G. Hooker (IEPA)
Concerning Work and
Site Safety Plans for RI/FS
at the Granite City site.

WORKPLAN

Comment No. 1

In Subtask 3a of Section 2.02 of OB&G's Work Plan for the RI/FS, the 10 samples of non-slag materials of the upper strata of the landfill will include samples taken from representative drums. As the hard rubber pile associated with the SLLR operation is relatively small and is expected to be homogeneous, we propose to redirect the sampling effort in order that 2 of the 4 proposed samples of the SLLR pile will be taken, instead, from additional drums at the landfill.

Comment No. 2

OB&G's suggestion, that a combined press release/public information document be prepared by the project team, will be rescinded.

SAFETY PLAN

Comment No. 1

The sections of the OB&G Safety Plan (Appendix B to the RI/FS Work Plan) entitled, "Site History, Summary of Site Hazards and Previous Monitoring Performed On-Site" (Sections 1.04, 1.05 and 2.01) do not appear to indicate, "...that lead concentrations are at 210,000 ppm..." Please inform me of the source of the citation.

Comment No. 2

Although OB&G has the files concerning past work that has been performed at the site, I do not believe that there have been direct references to waste acid directly running off the slag pile. It is extremely unlikely to expect liquid acid products in the slag pile. Accordingly, contingent upon OB&G's approval, the Tyvek® coveralls will not be augmented with acid splash protection.

Comment No. 3

Please provide me with the citation in OB&G's Safety Plan that would apparently exclude the application of such safety procedures for personnel working 5 feet above grade.

Comment No. 4

Emergency and first aid procedures are the subjects of Sections 4 and 5 of OB&G's Safety Plan.

Comment No.'s 5 & 6

OB&G's work will be performed in accordance with applicable requirements of the Occupational Safety and Health Administration's regulations incorporated in 29 CFR 1910 and 1926.



Illinois Environmental Protection Agency · 2200 Churchill Road, Springfield, IL 62706

217-782-6760

Refer: 11904007—Madison County
Granite City/Taracorp
Superfund/Technical Reports

July 15, 1985

Mr. William K. Weddendorf
Principal Environmental Engineer
NL Industries, Inc.
P.O. Box 1090
Hightstown, New Jersey 08520

Dear Mr. Weddendorf,

The purpose of this letter is to inform you of our review concerning the Work Plan and the Site Safety Plan for the Taracorp project.

During the course of our review, it was determined that additional information is necessary to complete the review. The information requested may be found in the attachment to this letter.

Review comments concerning the Quality Assurance/Quality Control Plan shall be forwarded to you as soon as possible.

Should you have any questions concerning the project, please feel free to contact me at 217-782-6760.

Very Truly Yours,

A handwritten signature in cursive script that reads "John G. Hooker".

John G. Hooker, Project Manager
Hazardous Substance Control Section
Division of Land Pollution Control

JGH:dh

Attachment

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JUL 17 1985

ENVIRONMENTAL
CONTROL



ATTACHMENT to TARACORP LETTER

The following information must be submitted prior to further review and subsequent approval:

WORK PLAN

1. The Work Plan stated under subtask 3a of the Remedial Investigation phase that the slag pile included drummed material. Please indicate what the contents of the drums are.
2. The Work Plan states under task 7 that Press Releases/Public Information Documents will be coordinated through your consultant's Project Team. Please be advised that all Press and Public Information Documents shall be approved by this Agency prior to their release to the public.

SITE SAFETY PLAN

1. The Safety Plan indicates that level C Respiratory Protection will be used. The plan also indicates that lead concentrations are at 210,000 ppm. Please be advised that concentrations of this magnitude require level B protection until concentration levels are lower than 100ppm.
2. As the possibility for acid products present in the slag pile exist, please be advised that the Ty-vek coveralls should be augmented with acid splash protection.
3. Please provide the safety procedures to be utilized for sampling the slag pile above five (5) feet.
4. Please provide what emergency procedures for accidents/injuries will be utilized in addition to what Emergency/First Aid equipment will be available and who the responsible party will be to administer First Aid.
5. Please indicate what type of Air Monitoring will be utilized during sampling activities.
6. Please indicate post-medical monitoring to be utilized for personnel with prolonged exposure to lead.

ATTACHMENT 2

Response to July 24, 1985
Comments by J. G. Hooker (IEPA)
Concerning QA/QC Plan for RI/FS
at the Granite City site

General Comment

It is our belief that the Agency comments in this matter are directed at assuring that OB&G's QA/QC plan (i.e., Quality Assurance Project Plan which comprises Appendix C to the RI/FS Work Plan) addresses the requirements of the USEPA document "Interim Guidelines and Specifications for Preparing Quality Assurance Project Plans" (QAMS-005/80). This results-oriented document's sole requirement with respect to personnel is believed to be noted in Element 4 of the QA Project Plan outline which requires, "...a table or chart showing the project organization and line authority [and a] list [of] the key individuals." NL Industries believes that OB&G has considerably exceeded this requirement in Section 1 of the attached second draft of the QA/QC Plan.

Comment No. 2

Refer to Figure 1 in Attachment 3 to OB&G's QA/QC Plan for the location and layout of the laboratory facility. An inventory of major equipment is also noted in Section 1 of Attachment 3.

Comment No. 3

As noted in the USEPA QA/QC Guidance Document, Essential Element No. 9 of each QA Project Plan requires that "For each measurement parameter, including all pollutant measuring systems, [the plan must] reference the applicable standard operating procedure or provide a written description of analytical procedure(s) to be used. Officially approved EPA procedures will be used when available." Section 5 of OB&G's Attachment 3 clearly references the standard USEPA procedures which will be utilized. As these are standard procedures, whose applicability and instrumental requirements are specified, the IEPA's request for additional information in regards to methods, instrument detection limits, range of calibration curves, interferences and applicability of method is not believed to be applicable. Information concerning sample preparation and pretreatment procedures are clearly shown in the "Atomic Absorption Methods" section of the USEPA document, entitled "Methods for Chemical Analysis of Water and Wastes" (EPA-600/4-79-020). On-site sample handling procedures are clearly specified in Section 5 of OB&G's Attachment 3.

Comment No. 4

Figure 3 of Attachment 3 provides a copy of the chain of custody forms to be used. Information concerning the type of sampling container and sample preservation is noted in OB&G's Sampling Plan, Appendix D, to the RI/FS Work Plan). With respect to the holding time of samples, the water analytical method noted in Section 5 of OB&G's Attachment 3 references procedures in the USEPA document entitled, "Methods for Chemical Analysis of Water and Waste", that address sample handling and preservation. Information concerning the step-by-step movement of samples is noted in Section 3.

Comment No. 5

Refer to OB&G's Attachment 3.

Comment No. 6

The IEPA's desire for "...all raw data, strip charts, and control charts..." to be sent to the Agency along with the results of the samples would appear to be made in accordance with Paragraph 24(a) of the Consent Order which necessitates that, "USEPA, Illinois EPA and NL Industries shall make available to each other the results of sampling, tests or other data generated by any of them, or on their behalf, with respect to the implementation of this Consent Order." However, NL Industries believes that this request represents an unreasonable burden upon our consultant. As the IEPA's request differentiates, "all raw data, strip charts, and control charts" from "the results of the samples", it would appear that pursuant to Paragraph 24(a) of the Consent Order, NL Industries is only obligated to make available to the Illinois EPA on a continuing basis "the results of sampling". In order to cooperate with the IEPA in this matter, NL Industries would be pleased to have OB&G provide the above-noted secondary information to the Illinois EPA upon specific request by the Agency if question(s) arise regarding certain sample results.

QC data will be reported as requested. [Note to OB&G: Is this acceptable?]



Illinois Environmental Protection Agency · 2200 Churchill Road, Springfield, IL 62706

217/782-6760

Refer to: 11904007 -- Madison County
Granite City/Taracorp
Superfund/Technical Reports

July 24, 1985

Mr. William K. Weddendorf
Principal Environmental Engineer
NL Industries Inc.
P.O. Box 1090
Hightstown, New Jersey 08520

Dear Mr. Weddendorf:

The purpose of this letter is to provide to you our comments concerning the proposed Quality Assurance Project Plan (QAPP) for the Taracorp project.

During our review, we determined that additional information is necessary in order for us to complete our review. This information may be found attached to this letter.

Should you have additional questions, please feel free to contact me at 217/782-6760.

Very truly yours,

A handwritten signature in cursive script, reading "John G. Hooker".

John G. Hooker, Project Manager
Hazardous Substances Control Section
Division of Land Pollution Control

JGH:jd/1590E/29

cc: B. Shah

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JUL 29 1985

ENVIRONMENTAL
CONTROL



Attachment to Taracorp Letter

The following items must be addressed prior to further review and subsequent approval:

1. A more detailed description of personnel needs to be provided. This includes the positions, their responsibilities, personnel's educational and experience background.
2. In terms of physical facilities and equipment, the location, layout and laboratory capabilities of the facility must be specifically outlined, including an inventory of major equipment to be used for this project.
3. The methodology provided in the QAPP is too general and requires further detail. Specifically, additional information in regards to methods, the instrument detection limits, the range of calibration curves, sample preparation, pretreatment procedures, interferences and applicability of the method must be provided. In addition, please be advised that there is no method for analysis of arsenic as per 206.1 nor is digestion method 3010 applicable to samples if they are to be analyzed by furnace or gaseous hydride techniques.
4. Concerning Chain-of-Custody procedures, please provide a copy of the Chain-of-Custody forms to be used. Additionally, information concerning step-by-step sample movement, type of sampling container, preservatives and holding time of samples must be provided.
5. Additional detail must be provided concerning laboratory QA/QC. Specifically, information concerning accuracy, precision, completeness, types and frequency of blanks, spikes, duplicates, calculation and manipulation of the data obtained, ranges of acceptability, corrective and preventative actions, frequency and procedure of laboratory instruments must be provided.
6. In regards to data reporting, please be advised that all raw data, strip charts, and control charts must be sent to the Agency along with the results of the samples. Additionally, all QC data must be reported in the same chronological order that the data were analyzed along with the actual samples.

JGH:jd/1590E/30

ATTACHMENT 3

Response to July 30, 1985 Comments by N. Meldgin (USEPA) Concerning Work, Safety and QA/QC Plans for RI/FS at the Granite City Site

WORK PLAN

Comment No. 1

In Subtask 3b of Section 2.02 of OB&G's Work Plan, Table 2 will be revised to note that the pH of groundwater samples will be determined. OB&G's sampling protocol, entitled "Sampling Plan, Granite City Site, Illinois", constitutes Appendix D to their RI/FS Work Plan. [Note to OB&G: Please make this change.]

Comment No. 2

Figure 3 of OB&G's Attachment 3 to their QA/QC Plan (Appendix C to the RI/FS Work Plan) provides a copy of the chain of custody forms to be used. Information concerning the step-by-step movement of samples is noted in Section 3 of this attachment.

Comment No. 3

Not Applicable

Comment No. 4

NL Industries concurs that the meeting noted in Subtask 10b does not appear to be necessary. By copy of this letter the concurrence of the Illinois EPA is requested. [Note to OB&G: Please make this change.]

Comment No. 5

Section 3.03 of OB&G's Work Plan, may be clarified by noting OB&G's responsibilities for alternative evaluations which are described in Task 10 of the Feasibility Study requirement of the Order. OB&G has made an initial common sense evaluation that the noted remedial approaches in Section 3.03 would be those that would be evaluated pursuant to Task 13 of the Feasibility Study. We can understand your concern that perhaps this evaluation is premature, and accordingly, the sentence which begins, "The Feasibility Study has been structured...", will be stricken from Section 3.03. [Note to OB&G: Please make this change.]

Comment No. 6

In Section 1.01 of OB&G's document, entitled "General Safety Plan, Granite City Site, Granite City, Illinois" (Appendix B to the RI/FS Work Plan), the on-site work dates will be revised to indicate 7 or 8 months following the date of the QAPP approval. [Note to OB&G: Please make this change.]

Comment No. 7

In Section 1.04 of the previously noted copy document, the spelling of "mixed" will be corrected.

Comment No. 8

In Section 1 of "Attachment 3, to OB&G's QA/QC program (Appendix C to the RI/FS Work Plan), it is noted that the OB&G's laboratory is located in Syracuse, New York.



JUL 20 1985

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604

REPLY TO THE ATTENTION OF

5HE-12

Mr. William Weddendorf
NL Industries, Inc.
P.O. Box 1090
Hightstown, New Jersey 08520

Dear Mr. Weddendorf:

The following comments deal with the Work Plan of O'Brien and Gere for the Granite City Site:

Subtask 3b. No mention of the effects battery acid might have upon the solubility of lead in the groundwater regime. O'Brien and Gere's sampling protocol should be in this document.

Subtask 8b. Chain of Custody should be spelled out in detail.

Subtask 8d. Comments by Mr. David Payne will be forwarded as soon as they are available.

Subtask 10b and Task 11. I doubt that two meetings are necessary.

Section 3.03. More than three alternatives will be investigated and the sentence "The Feasibility Study has been structured..." should be stricken.

Appendix Two 1.01. On-site work dates should read "7 or 8 months following the date of QAPP approval".

Appendix Two 1.04. Spelling of "mixed".

QAPP Analytical Procedures. Where is the analytical lab located?

John Hooker, IEPA, and myself have discussed the Work Plan and I hope that I have not duplicated comments which he has already submitted to you. Once again, I will pass along the comments of Mr. Payne as soon as they arrive.

Sincerely yours,

Neil Meldgin

Neil Meldgin

cc: John Hooker, IEPA
Roger Grimes, ORC

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AUG 01 1985

ENVIRONMENTAL PROTECTION AGENCY

ATTACHMENT 4

Response to August 9, 1985 Comments
by J. H. Adams, Jr. (USEPA) Concerning
QA/QC Plan for RI/FS at the
Granite City Site

WORK PLAN

The July 30, 1985 letter from Mr. Neil Meldgin, who is the USEPA's Project Coordinator having the authority of Paragraph 25a of the Consent Order to oversee the implementation of the order, conditionally approved all aspects of OB&G's Work Plan and the appended Safety and Sampling Plans. Mr. Meldgin specifically reserved further discussion of OB&G's Quality Assurance/Quality Control ("QA/QC") Plan. In accordance with the second paragraph of Mr. Adams' August 9, 1985 memorandum to Mr. Meldgin, as the Work Plan has been approved, this memo will address Mr. Adams' comments regarding OB&G's QA/QC and Sampling Plans.

Please refer to OB&G's enclosed revised Quality Assurance/Quality Control Project Plan and Sampling Plans (respectively, Appendices C and D to the RI/FS Work Plan).

Comments No. 1 & 5

Section 5 of OB&G's Attachment 3 to the QA/QC Plan identifies the major measurement parameters. In Section 7, a table has been included which summarizes the precision, accuracy and completeness objectives. Data quality objectives for accuracy and precision established for each measurement parameter have been based on prior knowledge of the measurement system employed in method validation studies using replicates, spikes, standards, calibrations, recovery studies, etc., and the requirements of the project. [Note to OB&G: I was unable to locate the noted table in the document under consideration; please make the necessary revision in order that the document will be consistent with the requirements of the USEPA document #QAMS-005/80, entitled "Intern Guidelines and Specifications for Preparing Quality Assurance Project Plans".]

Comment No. 2

The intended use of the data is clearly to support the evaluations required by the RI/FS. This is discussed in the Project Description in OB&G's QA/QC Plan.

Comment No. 3

The parameters to be analyzed are noted in Section 5 of Attachment 3 to OB&G's QA/QC Program.

Comment No. 4

The project organization is considered in the Project Organization section of Attachment 3 to QA/QC Plan, which incorporates Attachments 1 and 2.

Comment No. 6

Figure 3 of Attachment 3, OB&G's QA/QC provides a copy of the chain of custody forms which will be used. Information concerning the step-by-step movement of samples is noted in Section 3 of Attachment 3.

Comment No. 7

Mr. Adams is requested to identify the problems with the sample digestion procedures for the wastes. Section 5 of Attachment 3 to OB&G's QA/QC Program, which presents the digestion procedure and analytical methods to be used, discusses the implementation of SW-846 methods for RCRA testing. [Note to OB&G: the RCRA leach test procedure is not specified.] The method identified for water analyses of metals (flame atomic absorption) has been altered as applicable to the furnace technique. [Note to OB&G: Please make appropriate change.] The filtering of groundwater samples is appropriate, and has been previously approved by USEPA Region V pursuant to specific language in the Administrative Order and Response Order by Consent for the NL Industries, Inc., Taracorp, Inc., Golden Auto Parts Co., Inc. Site in St. Louis Park, Minnesota.

Comments No.'s 8 & 9

The specific procedures to assess precision and accuracy on a routine basis are described in Sections 4, 6 and 7 of Attachment 3 to OB&G's QA/QC Program. In addition, the quality control specifications of the USEPA methods are, of course, incorporated by reference.

General Comments

Refer to OB&G's Sampling Plan (Appendix D to the RI/FS Work Plan). [Note to OB&G: Revise the sample containers and sample preservation sections to note the field filtration of groundwater and run-off samples prior to preservation.]

WKW:dcb
3542e
10/21/85



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 5

230 SOUTH DEARBORN ST.

CHICAGO, ILLINOIS 60604

REPLY TO THE ATTENTION OF

5HE-12

AUG 19 1985

Mr. W. Weddendorf
NL Industries, Inc.
P.O. Box 1090
Highstown, New Jersey 08520

Dear Mr. Weddendorf:

Enclosed are the remaining comments which U.S. EPA wants to make with regard to the O'Brien and Gere submittals for the Granite City, Illinois site. Any questions should be brought to my attention at (312) 886-4726.

Sincerely,

A handwritten signature in cursive script that reads "Neil Meldgin".

Neil Meldgin

cc: R. Grimes, ORC

Enclosure

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AUG 23 1985

ENVIRONMENTAL
CONTROL

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: August 9, 1985

SUBJECT: Quality Assurance Project Plan (QAPP) and Associated Work
and Sampling Plans, NL Industries, Granite City, Illinois

FROM: *James H. Adams, Jr.*
James H. Adams, Jr., Chief
Quality Assurance Office

TO: Norman Niedergang, Chief
CERCLA Enforcement Section

ATTENTION: Neil Meldgin

Our Office has reviewed the subject QAPP in reference to the Consent Decree, Proposed Work Plan (dated June, 1985, and the Draft report of Illinois Environmental Protection Agency titled "A Land Pollution Assessment of Granite City/Taracorp Industries", May, 1984. A handwritten draft of this memo was previously sent Mr. Meldgin by David A. Payne, Chemist, Quality Assurance Office on July 31, 1985.

The QAPP is unacceptable as written. Our Office's comments are detailed below. We should first comment on the Work Plan, because it defines the sampling and analytical program that the QAPP will follow. The proposed Site Investigation appears minimal in parameter coverage, number of samples collected, and scope. If you require the Work Plan to be expanded in scope, the QAPP will also have to be rewritten. If the Work Plan remains unchanged, this memo will be applicable only to the QAPP and Sampling Plan.

I. WORK PLAN

The Work Plan provides for a Site Investigation, in 4 parts, as required by the Statement of Work.

A. Waste Characterization

Four surface slag samples, 10 sieved (3/8" sieve) upper strata samples, and 4 SLLR pile (rubber product pile) samples will be tested for total lead content, and for 8 metals after EP extraction. The EP extraction is used for waste disposal purposes under RCRA and should not be considered an indicator of on-site contamination. Table 2 of the Work Plan specifies that 7 metals, other than lead, will only be done for the EP Extracts. No total metals analyses, other than lead, are planned for the wastes.

Task 3a of the Statement of Work specifies a complete sampling and analysis program will be done to characterize all materials of interest. Is

lead only and surface wastes sufficient for the Work Plan? The Work Plan does not address tanks, drums, or the interior of waste piles. Are the wastes to be characterized for parameters other than lead? Compatibility of wastes is not addressed by the Work Plan. Is lead the only constituent of concern for waste characterization?

B. Hydrogeologic Investigation

A deep (50' - 60' depth) monitoring well and associated test boring samples may or may not be drilled. If done, the test borings may or may not be sampled and analyzed. Twelve (12) monitoring wells will be tested, using filtered sample aliquots only, for the 8 metals regulated by the Safe Drinking Water Act. This program does not seem consistent with the ambitious program required by Task 3b of the Statement of Work. This Investigation does not seem to address the determination of horizontal and vertical distribution of contaminants, and does not specifically address background levels of contamination. Background levels may be assumed but the Work Plan does not describe any specific wells as background wells.

The 1983 Illinois EPA report documented the analysis of 10 metals, several anions and total dissolved solids for the groundwater. The report suggests no contamination is moving off-site in the groundwater; however elevated sulfate concentrations were found in groundwater other than in Well #18. The Illinois EPA report recommends the following parameters should be tested in future studies:

As, B, Cd, Fe, Pb, Mn, Ni, Zn, Cl, SO₄, and TDS. These differ from the Work Plan proposed parameters.

The Work Plan and Statement of Work is primarily concerned with lead in the groundwaters and soil borings; however, lead may not be the primary contaminant in groundwater. The 1984 Illinois EPA report documents sulfate concentrations at concentration levels of hundreds and thousands of mg/l. High sulfate concentrations should immobilize or minimize the transport of sulfate, so long as sulfate remains present, as insoluble lead sulfate. Well 18D of the Illinois EPA Study report has sulfate concentrations exceeding 2,000 mg/l but nonexistent lead. Other toxic metals (ex. - cadmium) are present in gross concentrations (>10 mg/l Cd). The leachability and transport of cadmium or zinc would be expected greater than lead or barium in the presence of large sulfate concentrations. Other metals besides barium and lead (forming insoluble sulfates), and besides silver (not expected to be present) should be the primary parameters to measure in the groundwater and soil borings.

We strongly recommend that:

1. Groundwater be tested for all metal contaminants both as unfiltered samples and filtered samples. These should be tested in associated soil borings as appropriate. Complete metals analyses should be done on initial groundwater samples. The Work Plan has only 8 metals. The previous Illinois EPA study tested 10 metals. Neither study has complete metals determinations per CLP inorganic routine analytical services.

2. Suspended solids be measured on all waters, so as to interpret any unfiltered sample metal results having unusual metals results for the amount of suspended solids present.

3. pH, sulfate, alkalinity (and acidity if acid samples are encountered), total dissolved solids (TDS), and other appropriate anions be tested for each groundwater. These parameters should be applied to associated soil borings as appropriate. Tests of leached soil aliquots could be done for sulfate. The analysis of anions and TDS would serve as indicator parameters for any groundwater plume as they are probably the most soluble or leachable materials from the site. Sulfate is a contaminant itself at high concentrations.

C. Soils and Sediments Investigation

The Statement of Work specifies a program will be conducted to determine the location and extent of contamination of both surface and subsurface soils. The Work Plan only utilizes surface samples at 0-3 inch, and 3 to 6 inch depths. The Illinois EPA report documented elevated lead concentrations at a 15 foot depth in soils. The surface soil sampling for lead appears inconsistent with the Statement of Work specifications.

D. Surface Water Investigation

Four rainfall run-off and 4 sediments near the catch basins are to be tested for lead only. The run-off samples are to be filtered. It is recommended that these run-off samples not be filtered and suspended solids and metal contaminants, besides lead, be tested also on the run-off samples.

E. Air Investigation

The Work Plan's specification of no air monitoring appears inconsistent with Statement of Work specifications. Have all primary sources and all fugitive sources of lead contamination been identified?

F. Special QA and Analytical Methodology Considerations

Two items for analytical methodology or QA need to be discussed in the context of the Work Plan or level of QA necessary for QAPP considerations:

1. Total Metals Analysis of Wastes

The surface slag, sieved upper strata, and SLLR wastes are to be tested for lead content and possibly other metals contents. The analytical methodology specified by the QAPP involves an acid digestion normally used for CERCLA investigations of soils and waters. The wastes involved at Granite City may well be refractory (slag) or rubber/plastic (SLRR pile). If you want total lead in these wastes, a different sample digestion will be needed

that will ensure complete dissolution of the waste prior to analysis. If you wish to use the Contract Laboratory Program (CLP) digestion for these specific waste types, the metals contents should be described as "acid leachable" or "recoverable" metals within the context of the Work Plan or this remedial investigation.

Analysis of total metals for soil, water, and groundwater is acceptable using the CLP sample digestion protocols. Digestion methods for the wastes need to be discussed in more detail for the wastes, in relation to data usages and study needs, prior to any laboratory analyses.

2. Level of QA Effort

The groundwaters are to be analyzed for a variety of metals. Many of these waters have large concentrations of sulfate that will interfere in the analysis of lead and barium (precipitate formation) or arsenic and selenium (matrix interferences in the graphite furnace). Routine QA practices, when interferences are not expected, involve a QA audit effort 10-20% of the sample workload. In order to provide accurate metals analysis (As, Se, Pb, Ba), a QA effort of 100%, or accuracy checks on a sample-by-sample basis, may have to be done. Prior to any laboratory analyses, the laboratory should demonstrate accurate metals analyses for expected concentrations of interfering sulfate for both groundwaters and surface waters. The high sulfates will have to be factored into the level of QA effort necessary for the project.

II. QAPP AND SAMPLING PLAN

The QAPP is not acceptable. Little or no specific information is provided within the QAPP. There is insufficient information to determine the acceptability of the support laboratory. The QAPP needs to be rewritten from scratch. There is insufficient time to write all deficiencies in this document at present. The QAPP needs to be rewritten to include, but not limited to, the following:

1. Project Objectives which are consistent with the minimal investigations of the Work Plan, or a Work Plan that is consistent with the ambitious objectives in the Statement of Work.

2. Intended Data Usages.

3. A clear understanding of the parameters and matrices to be analyzed including any field measurements and geophysical testing of soils.

4. A project organization and responsibility element which identifies 1) functional activities of field investigations, 2) laboratories used, 3) laboratory QA responsibility, 4) data assessment, 5) Region V QA oversight, and 6) etc.

5. Specific QA Objectives for all measurements.

6. Identifiable of Chain-of-Custody procedures for the field, laboratory, and final evidence files.

7. Specific analytical methods that are consistent with specific QA Objectives. I have identified problems with sample digestion procedures for the wastes. Implementation of SW-846 methods for RCRA testing and total metals analyses of wastes needs to be detailed. The metals methods identified for water analyses (flame atomic absorption) may be insufficiently sensitive for study needs. Filtering of waters may not be appropriate.

8. Specific Laboratory QC Procedures.

The actual QC Protocols for laboratory analyses need to be detailed. The QC Procedures of the present QAPP are too generic and actually refer to practices used for CLP organic analyses and not inorganic analyses.

9. Performance and System Audits

Performance Audits or independently prepared reference samples for accuracy checks need to be detailed.

The Sampling Plan appears too brief. Field filtration of water sample aliquots is not described. Specific Chain-of-Custody procedures are not detailed.

For the information provided in the draft QAPP, we cannot determine if the analytical laboratory will be acceptable, or not. We cannot determine if resulting data will meet study objectives, because objectives are not detailed.

cc: T. Rutter, ERRB
J. Hooker, IEPA